Introduction

The years from 18 to 25 are a time of stunning accomplishments and chilling risks, as a roller coaster of internal and external changes, including brain changes, propels young adults from adolescence toward full maturity. Yet we are only beginning to understand how and why this all happens—and sometimes doesn't.

The MIT Young Adult Development Project was created to capture the powerful new research findings emerging about young adulthood, and to make these insights more accessible to colleges and universities, employers, parents, human service providers, and young adults themselves.

This web site distills the highlights from the research, while providing links to more resources, including contact information for the project's director, Rae Simpson, Ph.D., rsimpson@mit.edu. We look forward to hearing from you.

About the Project

Summary: A growing body of research knowledge is seeking to understand the unique strengths and vulnerabilities of young adulthood, including:

- impressive achievement in education, innovation, community service, and social entrepreneurship
- rapidly changing social patterns around relationships with parents; sexual practices; employment preferences; and marriage, family formation, and childrearing
- alarming rates of mental illness, suicide, binge drinking, school problems, and other risks

Responding to increasing awareness and concerns, the MIT Young Adult Development Project was created in 2005 to analyze, distill, and disseminate key findings about young adult development, findings that shed light on the unique strengths and dramatic challenges for this extraordinary period.

Defining young adulthood as the years between 18 and 25, the project focused on identifying research conclusions about which there is widespread agreement across disciplines and researchers, as well as practical relevance for universities, employers, parents, human service practitioners, and young adults themselves.

The Young Adult Development Project follows and complements a project directed by Rae Simpson, Ph.D., that analyzed and distilled research findings on adolescent development and the parenting of adolescents, summarized in the widely disseminated report, *Raising Teens: A Synthesis of Research and a Foundation for Action*, available at http://hrweb.mit.edu/worklife/rpteens.html.

Rae Simpson is available to give workshops, lectures, and other programs based on the project's findings. Her bio is on the web site at http://hrweb.mit.edu/worklife/youngadult/contact.html. For further information, contact Rae at rsimpson@mit.edu.

Also, a **PowerPoint presentation** based on the project's findings can be downloaded from the web site at http://hrweb.mit.edu/worklife/youngadult/youngadult_ppt.pdf.

Methods: The project investigators gathered and analyzed several hundred books, journal articles, and other materials, interviewed leading neuroscientists, and attended major conferences on young adulthood, parenting of college students, and developments in neuroscience.

Emphasis was placed on three areas of research:

- Cognitive development—the underlying changes in thinking patterns that affect behavior
- Brain development—the changes in the structure and function of the brain and their correlation with changes in thinking and behavior
- Influences on development—the role of colleges and universities, parenting, peers, and other factors in shaping the way development occurs and plays out

Researchers and theorists whose work was analyzed included Jeffrey Arnett, Michael Basseches, Marcia Baxter Magolda, Mary Belenky et al., Benjamin S. Bloom et al., Uri Bronfenbrenner, Arthur Chickering, Michael Commons, Erik Erikson, Kurt Fischer, James Fowler, Carol Gilligan, Neil Howe & William Strauss, Robert Kegan, Karen S. Kitchener & Patricia M. King, Lawrence Kohlberg, Daniel Levinson, Jane Loevinger, William Perry, Jean Piaget, George Valliant, and Leo Vgotsky.

References: An interactive database was created as part of the project, including about 500 books and materials on young adult development (cognitive, social, emotional, and moral development), as well as brain development, the influence of colleges and universities, the role of parents, and other topics . The database is being maintained by the MIT Center for Work, Family & Personal Life. A list of representative references in the database is available on the web site at http://hrweb.mit.edu/worklife/youngadult/references.html. To access the database itself, contact the Center for Work, Family & Personal Life at worklife@mit.edu.

Funding: Principal grant support from July 2006 through June 2008 was received from the Lord Foundation of Massachusetts, with matching funding in spring 2007 from MIT's Office of the Dean for Undergraduate Education.

Staff: The project is headed by Rae Simpson, Ph.D., Program Director for Parenting Education and Research in the MIT Center for Work, Family & Personal Life. Serving as co-PI is William Kettyle, M.D., Director and Head of MIT Medical, and affiliated faculty in the Harvard-MIT Division of Health Sciences & Technology.

For further information about the project, its findings, and its resources, contact:
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Changes in Young Adulthood

Overview

- Dramatic change
- Three categories
    - Adolescence
    - Young adulthood
    - Later adulthood
- The mental visor
- An emerging field

Dramatic change: A large and relatively new body of research is revealing that young adulthood is a time of dramatic change in basic thinking structures, as well as in the brain. Consensus is emerging that an 18-year-old is not the same person she or he will be at 25, just as an 11-year-old is not the same as he or she will be at 18. They don't look the same, feel the same, think the same, or act the same.

Three categories: Across theories and research frameworks, a sequence of developmental shifts emerges, which can be organized into three overall categories:

⇒ Adolescence (generally defined as puberty through age 18)
⇒ Young adulthood (generally defined as 18 to 22 or 18 to 25)
⇒ Later adulthood (generally defined as mid-20s and older)

Many researchers and theorists divide these three broad areas into several smaller shifts, depending on the aspect of development they are measuring, such as reflective judgment, moral development, or cognitive structural development. There remains much division within and between disciplines—but, at the broader level, they share significant common ground.

The mental visor: Fundamentally, what changes in these developmental shifts is not just what people think, but also what they think *about*. Everyone, including young adults, has a kind of mental "visor" that screens out some kinds of phenomena while letting in others for consideration. As development unfolds, one can "see" and think about more and more complex phenomena such as abstractions, relationships, and moral problems, offering more and more powerful thinking tools.

Why does development happen? Most researchers see a role both for nature and nurture. In healthy people, some changes evolve on a biological timetable, as long as the environment is "good enough," and some changes are prompted by demands in the environment, as long as the biological underpinnings are "good enough."

When teens enter young adulthood, their thinking capacities, relationship skills, and ability to regulate emotions are unlikely to be at a developmental level where they can cope easily with the demands of a diverse, global, technological, rapidly-changing world. If all goes well, biology and environment bring a surge of growth paralleling those of childhood and adolescence.

An emerging field: Acknowledging these findings, researchers have begun to define young adulthood as its own developmental period, referring to it as "emerging adulthood," "the frontier of adulthood," or, earlier, "the novice phase." Here at the start of the 21st century, researchers are creating a new field around young adulthood, just as, at the turn of the 20th century, researchers defined a new field around adolescence.

Much of the impetus and focus for the research has come from the lengthening period in the U. S. between the onset of puberty and the fulfilling of cultural expectations around adult roles like financial independence and family formation. Significant differences can be expected across culture and circumstance.

Changes in Young Adulthood

Adolescence

- Abstract thinking
- Right/wrong framework
- Instrumental relationships
- Intensity of emotion
- Sensation seeking

The changes in young adulthood build on changes that have taken place in adolescence, particularly the following:

Abstract thinking: One of the most exciting changes in adolescence is the development of a much greater capacity for abstract thought. By early adolescence, one's mental visor can hold not only concrete objects and experiences, but also concepts for organizing them into categories and patterns—abstract concepts such as friendship or fairness. One can think about addition and subtraction as "opposite" operations, for example, rather than simply carrying out these functions.

Right/wrong framework: This abstract thinking, however, still has limitations, including a tendency to be able to hold on one's mental screen only one concept of what is "right" at a time. Ideas are either right or wrong; you are either right or wrong; they are either right or wrong. Knowledge is held by authorities, such as teachers, and the student's job is to learn the right answers and give them back to the teacher. This has been called "dualistic" thinking by William Perry and others. (See References on the web site.)

Instrumental relationships: Teens also are limited in their ability to hold more than one point of view. They can put themselves in another person's shoes, but they have more difficulty holding another point of view and theirs at the same time. When their needs become pressing, the needs of others fall off the mental visor. Given these limitations, relationships tend to be about alternating reciprocity, "You scratch my back, and I'll scratch yours." This has been called "instrumental" thinking by Robert Kegan and others. (See References on the web site.)

Intensity of emotion: Triggered by hormones at puberty, teens are more aroused, and aroused more easily, whether by something that makes them happy, angry, or excited. It is not clear, for example, whether they actually argue more often with parents, but it is clear that, when they argue, they express more anger.

Sensation seeking: Teens also show a heightened desire for emotional intensity, and for the thrills, excitement, adventures, and risk-taking that are likely to generate high emotion. The ability to regulate such emotions effectively does not typically come until young adulthood, so there is often a gap of several years between the onset of the "accelerator" and the development of effective "brakes." Or, as Pittsburgh researcher Ronald Dahl puts it, "We have a supercharged car with an unskilled driver." (See References on the web site.)

Adolescence also brings, as a result of hormonal changes at puberty, increased sensitivity to alcohol and other drugs, alterations in the sleep cycle, and changes in the hormones associated with mood. All of these changes interact, contributing to adolescents' heightened vulnerability to mood disorders and other types of mental illness.

Changes in Young Adulthood

Young Adulthood

- More complex thinking
- Appreciation for diverse views
- Mutuality in relationships
- Emotional regulation
- Risk-taking and decision-making
- Caveats

More complex thinking: As teens progress into young adulthood, they are able to hold and manipulate on their mental "visor" not only single abstractions, but also clusters of abstractions and then systems for organizing abstract thoughts, according to Kurt Fischer, Michael Commons, and others. (See References on the web site.) This assists them perhaps most visibly in mathematics and sciences, but applies to thinking about all phenomena, such as ideas, values, and perspectives.

Appreciation for diverse views: This added thinking power is described by William Perry and others as a change from the "right/wrong" framework of adolescence described above to a more "multiplistic" framework, in which young adults can "see" many points of view, value the diversity of people and perspectives, and appreciate that there can be many right answers to a problem. At first, all ideas seem to have equal value, as one embraces the full diversity of peoples and perspectives. Over time, one finds ways to organize this multiplicity, to identify values and viewpoints that work better for oneself, while respecting that other viewpoints may fit better for others. Ultimately, one evolves a more "relativistic" approach and works out ways to commit personally to certain values amidst the diversity.

Mutuality in relationships: Young adults are better able to consider different points of view at the same time, that is, to hold multiple perspectives on their mental visor. This allows them to form relationships with peers based on observing that they care about the same things and loyalties to institutions based on observing that they share the same values. They can also understand constructive criticism, appreciating that the other person is intending to be helpful, even if the effect is painful at the moment. Moving from the "instrumental" described above to a more "socializable" orientation, in Robert Kegan's terms (See References on the web site), young adults are more likely to operate from a principle like the Golden Rule, "Do unto others as you would have them do until you."

Emotional regulation: Critical to their safety, young adults acquire a significantly greater capacity for integration of thought and emotion. With the ability to hold the present and the future on their mental visor at the same time, they can weigh immediate rewards against future consequences, putting more effective "brakes" on the emotional intensity and sensation-seeking heightened since puberty.

Risk-taking and decision-making: With this greater capacity for thinking about future consequences and regulating emotions, young adults have an easier time modulating risk-taking and making decisions about the future, including choices about health, relationships, education, and careers. They can also weigh the impact of their choices on others more effectively, in actions as simple as showing up for appointments on time or as complex as parenting a young child.

Caveats: The advent of a new developmental skill, such as multiplistic thinking, does not mean that one uses that skill all the time. Rather, it becomes a new option, one that at first can be tapped only with a great deal of support, probably in one particular area, such as an academic subject. Gradually it becomes easier and more familiar and hence used more frequently across a wider range of life experiences. For more information on these gradations, see Developmental Range below.

A more sobering caveat is that some people never fully achieve these milestones at all. Although they occur in young adulthood if all goes well, there are by no means automatic, and they can be delayed or severely limited by a number of circumstances, including mental illness; learning disabilities; frequent use of alcohol or other drugs; and abuse, neglect, deprivation, violence, and other traumas. See Individual Differences below.

Changes in Young Adulthood

Later Adulthood

- New levels of abstract analysis
- More complex problem-solving
- Enhanced leadership capacity
- Greater capacity for self-evaluation
- Internal basis for commitments in work and relationships

On an even less predictable timetable, powerful changes continue after young adulthood, which cumulatively can lead to sophisticated thought and behavior significantly more complex than that of young adulthood. Employers, parents, peers, and others often sense this evolution subjectively, noticing that someone in or after their mid-20s is somehow more "mature," more fully an adult. Elements that are part of this growth include:

New levels of abstract analysis: Researchers measure yet another level of complexity in abstract thought, sometimes called abstract systems, which represents an ability not only to organize abstractions, but to do so self-consciously, and to evaluate ways of doing so. This capacity is important in certain types of fields, such as science, humanities, and law, and sometimes shows up relatively early, in the mid-20s, in those studying these areas.

More complex problem-solving: Also measurable is greater sophistication in analyzing problems that have no right answers, such as moral dilemmas, and to articulate resolutions based on more complex types of thought.

Enhanced leadership capacity: Sometimes described as more "self-authoring," people who have evolved beyond young adulthood are able to put themselves on their mental "visor," and to observe the ways in which they play an active role in shaping their values and decisions. Thus, they can create as well as follow rules, conscious that there is a process by which individuals do so. As parents, they can make family rules and maintain boundaries more comfortably.

Greater capacity for self-evaluation: With this enhanced ability to see themselves as actors on the stage of life, they can also evaluate how effectively they do so, and how satisfied they—or their employers, partners, and others—are with their performance and their impact.

Internal commitments in work and relationships: At the same time, they can form commitments to people, work organizations, communities, and families based on a self-awareness of their own role in making choices, rather than following along out of loyalty to the same values. As Robert Kegan has put it, the kinds of "meaning-making" that are characteristic of young adulthood are rather like using automatic shift; those more characteristic of older adults are more like manual shift, where one has more understanding of and influence over the mechanisms behind one's decisions.

Brain Changes in Young Adulthood

- Setting the stage--adolescence
- Changes in young adulthood
    - Prefrontal cortex
    - Connections among regions
    - "Executive suite"
- 20s and beyond

Setting the stage--adolescence: The limitations of the "teen brain" has been well publicized in the mass media, helping parents, teachers, and others understand why it may be difficult for teens to meet our expectations and demands for managing emotions, handling risks, responding to relationships, and engaging in complex school work or employment. In early- and mid-adolescence, the brain undergoes considerable growth and pruning, moving generally from back to front areas of the cerebral cortex.

Changes in young adulthood: At the same time that young adults are experiencing new levels of sophistication in thinking and emotional regulation, their brains are undergoing changes in precisely the areas associated with these functions. While it is not possible to determine cause-and-effect, brain and behavior are changing in parallel.

Prefrontal cortex: The most widely studied changes in young adulthood are in the prefrontal cortex, the area behind the forehead associated with planning, problem-solving, and related tasks. At least two things affect the efficiency in its functioning:

1. myelination: the nerve fibers are more extensively covered with myelin, a substance that insulates them so that signals can be transmitted more efficiently, and
2. synaptic pruning: the "briar patch" of connections resulting from nerve growth are pruned back, allowing the remaining ones to transmit signals more efficiently.

Connections among regions: At the same time, the prefrontal cortex communicates more fully and effectively with other parts of the brain, including those that are particularly associated with emotion and impulses, so that all areas of the brain can be better involved in planning and problem-solving.

"Executive suite": The cluster of functions that center in the prefrontal cortex is sometimes called the "executive suite," including calibration of risk and reward, problem-solving, prioritizing, thinking ahead, self-evaluation, long-term planning, and regulation of emotion. (See Merlin Donald, Daniel Keating, and others in References.) It is not that these tasks cannot be done before young adulthood, but rather that it takes less effort, and hence is more likely to happen.

20s and beyond: According to recent findings, the human brain does not reach full maturity until at least the mid-20s. (See J. Giedd in References.) The specific changes that follow young adulthood are not yet well studied, but it is known that they involve increased myelination and continued adding and pruning of neurons.

As a number of researchers have put it, "the rental car companies have it right." The brain isn't fully mature at 16, when we are allowed to drive, or at 18, when we are allowed to vote, or at 21, when we are allowed to drink, but closer to 25, when we are allowed to rent a car.

Individual Differences

- Age, education, gender
- Abuse, neglect, trauma
- Race, ethnicity, sexual identity
- Temperament
- Parenting style
- Illness
- Disabilities
- Substance abuse
- Culture
- Getting stuck

The timing of developmental changes, and whether they happen at all, varies profoundly from person to person. Many factors play a role, including the following.

Age, education, gender: Certain demographics make a difference in the timing and likelihood of developmental shifts, notably age, gender, and exposure to formal education.

Abuse, neglect, trauma: Traumatic events, such as abuse, neglect, severe deprivation, and exposure to violence, take a costly toll. Young adults with a history of trauma are vulnerable to getting "stuck" developmentally, or to growing more slowly and/or unevenly than otherwise.

Race, ethnicity, sexual identity: Anything that adds to challenges around identity can make the developmental tasks of young adulthood more difficult, including challenges associated with belonging to an oppressed, victimized, or stigmatized group within society.

Temperament: People are born with varying degrees of openness to change and to the experiences that facilitate certain types of developmental change.

Parenting style: Parents vary in the extent to which they provide opportunities for young adults to receive the support and the challenges that foster development. The role of parents in young adult development is only just beginning to be studied and appreciated, but it is clear that parents continue to have an important and evolving influence.

Illness: Any serious illness, especially mental illness, can create delays in healthy development. The high rates of depression and other mental illnesses among young adults in the U.S. are of particular concern.
Disabilities: Learning disabilities are a factor in development, as are differences between the learning style of the young adult and the educational approach of her or his learning environment.

Substance abuse: Growing evidence points to the serious impact of chronic substance abuse on young adult development. Recent research is demonstrating ways in which alcohol and other drugs affect the growing brain, causing damage that may or may not be possible to repair.

Culture: Fascinating differences in young adult development across culture are just beginning to be explored, differences that allow some kinds of growth to occur earlier in some cultures than others. For example, young adults in cultures that emphasize interdependence and interconnectedness may adopt a more "multiplistic" view sooner than those in societies that emphasize individuality and independence.

Getting stuck: Because of any of these circumstances, or a combination, some people may not make the kinds of shifts in complexity of thinking that typically occur in young adulthood. They struggle with the expectations and demands of modern life in part because they are handicapped by thinking capacities that are more typical in some ways of adolescence and younger ages.

Ways to Help

Overview

- Blending support and challenge
- Three tiers of influence

Blending support and challenge: Fostering healthy growth is a balancing act, because the process of development, for anyone, is alternatively exhilarating, disconcerting, satisfying, frustrating, and terrifying. If the environment contains too much challenge, young adults will retreat into old habits, lacking the safety to experiment with new ways of thinking. If the environment provides too much support, young adults will lack the experiences that expose and question the limitations of their old ways of thinking. Just as young adults are learning that there is no one "right" way to approach problems, their mentors and guides must grapple with their being no one "right" way to help them.

Three tiers of influence: All told, the process of encouraging development in young adults can take place at any or all of three levels:

- One can help to provide the conditions that encourage optimal functioning, or at least discourage regression in functioning, such as opportunities to practice new thinking skills; see developmental range below.
- One can encourage steps toward the next developmental milestones, based on ingredients for providing support and providing challenge outlined below.

One can encourage young adults to think of development as an ongoing, life-long process by modeling and talking about one's own developmental changes and challenges, past and present.

Ways to Help

Understanding Developmental Range

- Developmental range
- "Hot" and "cold" cognition
- Sleep deprivation
- Surroundings
- Practice
- Support

Developmental range: No one operates at her or his developmental best all the time. We all have an "optimal" level of functioning that we can manage when we are least stressed and most supported—and lower levels of functioning for the rest of the time. For example, a student's ability to solve a complex problem may be very different when he or she is working one-on-one with a mentor than it will be that same night when she or he is tired and alone. Some theorists believe that new, more complex capacities for functioning arrive in spurts or stages. However, because these new capacities are fragile at first, and used rarely, they appear to evolve more gradually. Over time, what was hard becomes easier, and what was impossible becomes merely hard.

Below is a list of some of the key factors that can affect one's level of functioning.

"Hot" and. "cold" cognition: As we all know too well, people don't function at their cognitive best at times of high emotional arousal, what researchers sometimes call "hot" cognition. Thus, a young adult may genuinely say at the family dining table, with clarity and sincerity, that he or she would not consider drinking and driving, but this same level of cognitive functioning is unlikely to be present after a party, late at night, pressured by friends, or preoccupied by the prospect of hooking up. "I wasn't thinking" is literally true.

Sleep deprivation: Our cognitive functioning is also different when we are alert and rested, compared to when we are sleepy or sleep-deprived. This is of particular concern among teens and young adults, given the prevalence of sleep deprivation triggered, in part, by changes in sleep cycles and in larger part by modern 24/7 lifestyles.

Surroundings: Like all of us, young adults demonstrate higher levels of cognitive functioning when they are in familiar surroundings. Thus, college freshmen are likely to be particularly vulnerable to mistakes and difficulties with judgment, as they navigate entirely new environments, rules, and lifestyles.

Practice: We can use optimal levels of functioning more effectively in content areas that are familiar, where we have had the most practice. Students who are more at home with academic subjects than social scenes, for example, will show more optimal functioning in these areas—and vice versa.

Support: Support encourages more optimal functioning, whether it takes the form of modeling the optimal behavior, taking an interest, mentoring, or even doing the same activity along with the learner.

How to Help

Providing Challenge

- Interactions with teachers & other adults
- Diversity of peers
- Interdisciplinary & integrative approaches to education
- Out of classroom experiences
- Instruction in cognitive skills

Interactions with teachers & other adults: One of the most well-established findings about the influence of college on young adult development is that students benefit significantly from interactions with adults who are thinking at higher levels of cognitive complexity, engaging in meaningful and respectful dialogue, and modeling more sophisticated thinking. Some studies focus on the influence of faculty specifically, others on adults more generally.

Diversity of peers. Simply the presence of a rich range of people and ideas makes a difference, challenging young adults to widen their thinking and reach greater complexity.

Interdisciplinary & integrative approaches to education. Educational experiences that bring together diverse ideas and information also help to challenge "black-and-white" thinking.

Out of classroom experiences. A recognition of the value of out of classroom experiences is reflected in the growing interest in semesters abroad and public service opportunities on college campuses.

Instruction in cognitive skills. Although generally not found to be as effective as out-of-classroom experiences, actual instruction in areas like "critical thinking" and "leadership" can play a significant role, depending on the characteristics of the program.

How to Help

Providing Support

- Scaffolding
- Matching level of challenge with ability
- Balance of structure and flexibility
- Monitoring
- Safety net
- Tincture of time

Scaffolding. Some researchers use the image of scaffolding to describe the kind of support young adults need—a framework to surround them while the building is being constructed inside, one that is removed piece by piece as more of the building is completed. The "scaffolding" includes:

Matching level of challenge with ability. If the level of challenge is too great, young adults, like all of us, "developmentally escape," finding ways to absorb new ideas into old structures, rather than taking apart the old structures to build new ones.

Balance of structure and flexibility: Young adults need opportunities to make decisions—and mistakes—on their own, in areas where it is safe to do so, and they need clear boundaries in areas where it is not.

Monitoring: The environment surrounding young adults also needs to include mechanisms for identifying people and situations where mistakes have become, or may become, too costly, and where assistance needs to be offered.

Safety net: The important resources in a young adult's life, including parents, university programs, clinicians, employer services, and others, need to be in coordination, so that a young adult can "fall" into a safety net anywhere and find her or his way to the right people and programs.

Tincture of time. Healthy development takes time, which the pressured atmosphere of many campuses and workplaces does not provide. Offering opportunities for taking time-out is critical, without stigma and with recognition that doing so is a common and often essential step when students, family members, or employees get "stuck."

References

An interactive database was created as part of the project, including about 500 books and materials on young adult development (cognitive, social, emotional, and moral development), as well as brain development, the influence of colleges and universities, the role of parents, and other topics. The database is being maintained by the MIT Center for Work, Family & Personal Life. Download a list of representative references at http://hrweb.mit.edu/worklife/youngadult/references.html. To access the database itself, contact the Center for Work Family and Personal Life at http://hrweb.mit.edu/worklife/.

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Rae Simpson, Ph.D., is Program Director for Parenting Education and Research at the Massachusetts Institute of Technology, where she co-directs MIT's Center for Work, Family & Personal Life. She develops and coordinates a broad range of work/life services and initiatives for the MIT community, many of which have won national recognition. Specializing in parenting issues, she is particularly known for her program of workshops, consultations, research briefings, professional networks, and other resources in the parenting field.

A specialist in communication of research knowledge to the public, Rae recently created the MIT Young Adult Development Project, which gathers and disseminates recent findings on young adult development, including brain development, highlighting the unique needs and characteristics of this age group and exploring implications for universities, parents, policymakers, human service providers, employers, and others.

As chief consultant to the Harvard Parenting Project at the Harvard School of Public Health, with funding from the John D. and Catherine T. MacArthur Foundation, Rae wrote and published two widely disseminated reports: *Raising Teens: A Synthesis of Research and a Foundation for Action* and *The Role of the Mass Media in Parenting Education*, available at http://hrweb.mit.edu/worklife/rp_o.

Rae has consulted on issues in parenting education, parenting and the media, youth development, and research communication to national and international organizations including the World Health Organization, CBS television, National Science Foundation, the United Nations, public television, and major advertising, publishing, and law firms. She is founding chair of the National Parenting Education Network, http://www.npen.org/, a national professional organization for parenting education.

Rae received her Ph.D. in communication research from Stanford University and is the author (under her former name, Rae Goodell) of *The Visible Scientists* (Boston: Little, Brown, 1977), which explores the relationship between experts and the media, as well as numerous articles in such publications as *The New York Times, Columbia Journalism Review*, and *The Washington Post.*